12pm

Quiz 2

Fall 2012 **Your name:** _____

Math 0220 **Your TA's name:** _____

No calculators, no notes, no books. Show all your work (no work = no credit). Write neatly. Simplify your answers.

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1. (a) [4 points] What is the domain of $f(x) = \dfrac{\sqrt{x^2 - 1}}{\cos x}$ inside the interval $[0, \pi]$?

(b) [3 points] Determine whether the function in the part (a) $\left(f(x) = \dfrac{\sqrt{x^2 - 1}}{\cos x} \right)$ is even, odd or neither inside its domain.

2. [6 points] Starting from the graph of $\sin x$ sketch the graph of the function $g(x) = 2\sin\left(3x - \frac{\pi}{2}\right)$. Mark all important points on the axes.

3. (a) [3 points] Find the function $g \circ f$ if

$$f(x) = (x-2)^2, \quad g(x) = \sqrt{x-1}.$$

Simplify your answer.

(b) [4 points] Find the domain (maximal possible) of the function $g \circ f$.

bonus problem [5 points extra] Evaluate the difference quotient $\dfrac{f(x)-f(1)}{x-1}$ for the function $f(x)=\dfrac{x}{x+1}$.